



### *Dailey® Hydraulic Fishing Jar*

The Weatherford *Dailey* hydraulic fishing jar, with a patented combination time-delay/mechanical trigger system, is a rugged tool for fishing applications. The jar combines reliability and long operating life under a wide range of fishing conditions and environments.

The jar features a one-piece involute spline for maximum torque capacity with minimal backlash. A fluid-isolated high-pressure chamber lubricates and isolates the moving seals, impact shoulders, and mandrel of the jar from the destructive effects of formation cuttings, sand, and other downhole debris.

Its unique design allows use of this jar in deep, deviated, high-temperature holes without compromising performance. The jar delivers virtually the same time delay in deep, hot holes as it does on the surface.

The jar does not generate internal heat during jarring periods; therefore, this design feature enables uninterrupted jarring without waiting for the jar to cool down or for the viscosity of the oil to return to normal. Elimination of heat build-up also extends packing and seal life as well as the time the jar can remain downhole.

The design also eliminates the need for bleed-off compensation; the trip load at the jar will be the same as set at surface.

With large free-flow paths, the jar can be re-set as fast as the string can be lowered, without damage to the internal seals or bursting of any body housings. Re-setting does not require pre-loading—only enough weight to overcome internal seal friction.

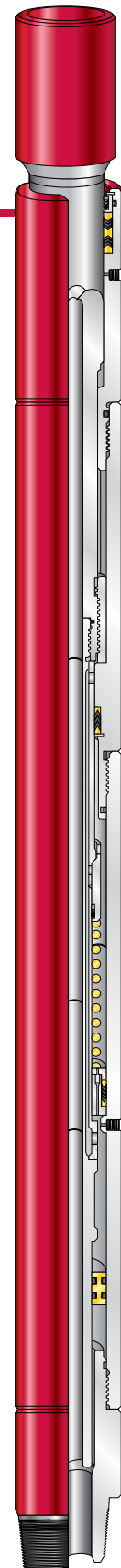
The jar requires only axial manipulation of the string. The rugged involute spline system prevents downhole torque from interfering with the tripping times of the jar.

Overpull to the jar is infinitely variable within the overpull limits established for the jar size. This feature gives the operator complete control of the impact to the fish by simply adjusting the pull on the string.

Jarring load is controlled and varied at the surface by overpull: the greater the overpull, the faster the jar trips and the higher the impact loads achieved.

### *Applications*

- All fishing, coring, washover, and other applications that require delivery of an upward impact to a stuck point, tight spot, or breakage of a core before retrieval from the wellbore.





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### *Features, Advantages and Benefits*

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- Rugged, durable construction for reliability and longer tool life
- Hydraulic time delay for reliability under a wide range of conditions and environments
- Mechanical trigger for durability
- Single-piece involute spline for maximum torque capacity with minimal backlash
- Fluid-isolated high-pressure chamber for protection against formation cuttings, sand, and other downhole debris
- Elimination of the need for bleed-off compensation, simplifying operation
- Elimination of internal heat generation for uninterrupted jarring, longer packing and seal life, and longer downhole time
- Variable overpull for easier, complete control from surface



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### Specifications

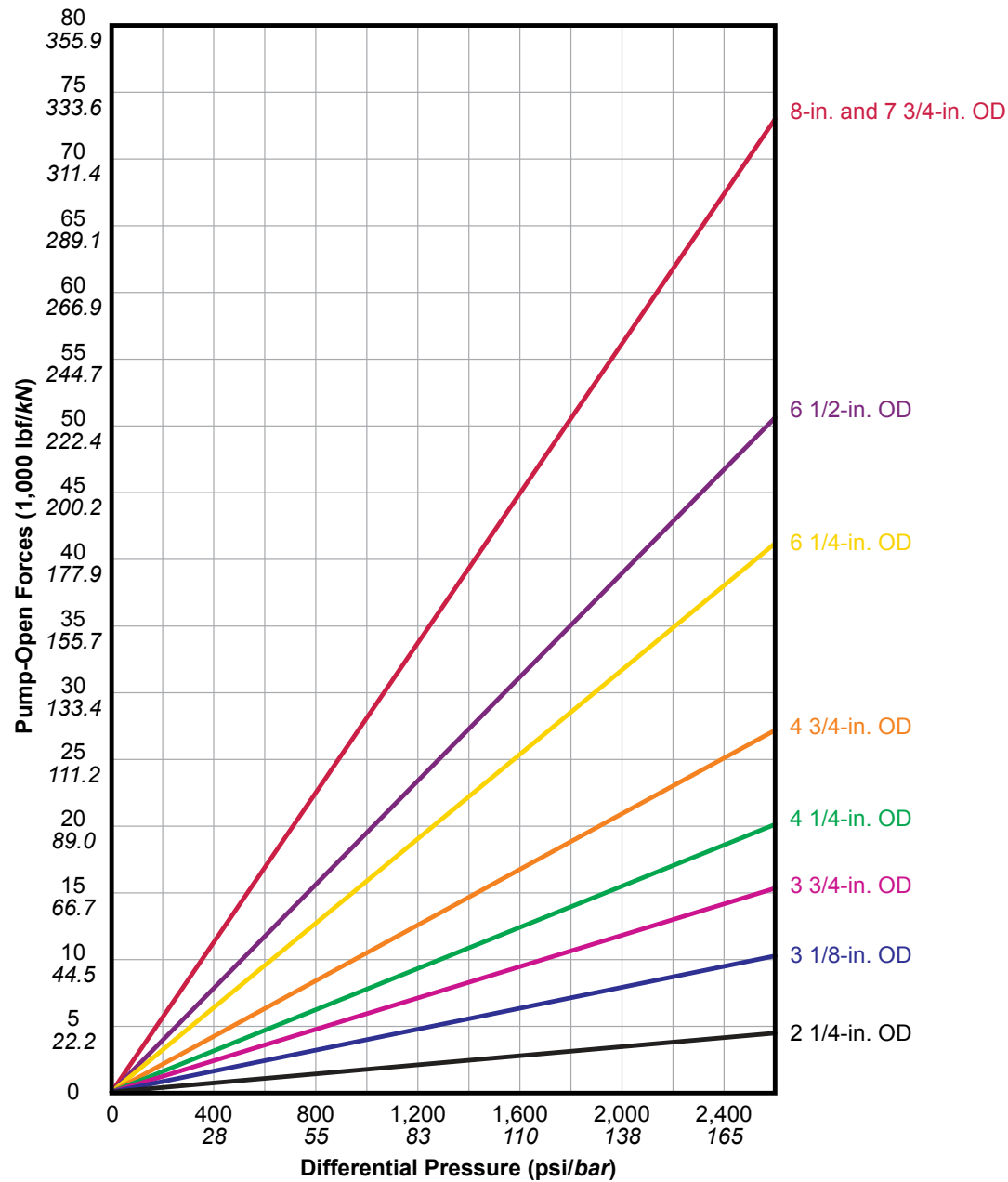
| OD<br>(in./mm) | ID<br>(in./mm) | Tool Joint<br>Size<br>(API) | Tensile<br>Yield*<br>(× 1,000 lbf)<br>(× 1,000 N) | Torsional<br>Yield*<br>(× 1,000 lbf-ft)<br>(× 1,000 N-m) | Maximum<br>Jar Load<br>(× 1,000 lbf)<br>(× 1,000 N) | Length<br>Closed<br>(ft/m) | Weight<br>(lb/kg) | Free<br>Travel<br>(in./mm) | Total<br>Stroke<br>(in./mm) | Maximum<br>BHT<br>(°F/°C) | Pump Open<br>Area<br>(in.2/cm2) |
|----------------|----------------|-----------------------------|---------------------------------------------------|----------------------------------------------------------|-----------------------------------------------------|----------------------------|-------------------|----------------------------|-----------------------------|---------------------------|---------------------------------|
| 1-13/16<br>46  | 1/2<br>13      | 1-13/16 WFJ                 | 75<br>334                                         | 1.6<br>2.2                                               | 20<br>89                                            | 7.0<br>2.1                 | 50<br>23          | 4<br>102                   | 5-1/2<br>140                | 400<br>204                | 1.1<br>7.1                      |
| 2-1/4<br>57    | 11/16<br>17    | 1-1/4 Reg                   | 110<br>489                                        | 2.5<br>3.4                                               | 30<br>133                                           | 7.8<br>2.4                 | 80<br>36          | 4<br>102                   | 6<br>152                    |                           | 1.8<br>11.6                     |
| 3-1/8<br>79    | 1-1/4<br>32    | 2-3/8 Reg                   | 250<br>1,112                                      | 5.0<br>6.8                                               | 45<br>200                                           | 9.0<br>2.7                 | 180<br>82         | 4-1/8<br>105               | 6-1/8<br>156                |                           | 4.0<br>25.8                     |
|                | 1-1/2<br>38    | 2-7/8 PAC                   | 200<br>890                                        |                                                          | 35<br>156                                           | 8.7<br>2.6                 | 180<br>82         | 4<br>102                   | 6<br>152                    |                           |                                 |
| 3-3/4<br>95    | 1-1/2<br>38    | 2-3/8 IF,<br>EUE            | 328<br>1,459                                      | 9.5<br>12.9                                              | 66<br>294                                           | 10.5<br>3.2                | 280<br>127        | 4-1/4<br>108               | 6-1/8<br>156                |                           | 5.9<br>38.1                     |
|                | 1-3/4<br>44    | 2-3/8 IF                    | 260<br>1,157                                      | 7.8<br>10.6                                              | 45<br>200                                           | 9.0<br>2.7                 | 222<br>101        |                            |                             |                           |                                 |
|                | 1-15/16<br>49  | 2-3/8 EUE                   |                                                   |                                                          |                                                     | 10.0<br>3.0                | 230<br>104        |                            |                             |                           |                                 |
| 4-1/4<br>108   | 2-1/8<br>54    | 2-7/8 IF                    | 325<br>1,446                                      | 15<br>20.3                                               | 55<br>245                                           | 9.0<br>2.7                 | 290<br>132        | 4-1/4<br>108               | 6-1/8<br>156                |                           | 7.7<br>49.7                     |
| 4-3/4<br>121   | 2-1/4<br>57    | 3-1/2 IF                    | 500<br>2,224                                      | 20.0<br>27.1                                             | 85<br>378                                           | 9.9<br>3.0                 | 400<br>181        | 5<br>127                   | 7<br>178                    |                           | 10.3<br>66.5                    |
| 6-1/4<br>159   | 2-1/4<br>57    | 4-1/2 IF                    | 1,000<br>4,448                                    | 49.3<br>66.8                                             | 200<br>890                                          | 12.2<br>3.7                | 800<br>363        | 6<br>152                   | 8-1/4<br>210                |                           | 15.9<br>102.6                   |
| 6-1/2<br>165   | 2-3/4<br>70    | 4-1/2 IF                    | 1,000<br>4,448                                    | 56.2<br>76.2                                             | 175<br>778                                          | 12.8<br>3.9                | 1,100<br>499      | 6-1/2<br>165               | 8-1/2<br>216                |                           | 19.6<br>126.5                   |
| 7-3/4<br>197   | 3<br>76        | 6-5/8 Reg                   | 1,600<br>7,117                                    | 100.0<br>135.6                                           | 260<br>1,157                                        | 13.8<br>4.2                | 1,850<br>839      | 7-1/2<br>191               | 9-3/4<br>248                |                           | 28.3<br>182.6                   |
| 8<br>203       | 3<br>76        | 6-5/8 Reg                   | 1,600<br>7,117                                    | 105.0<br>142.4                                           | 300<br>1,334                                        | 14.0<br>4.3                | 2,000<br>907      | 7-1/2<br>191               | 9-3/4<br>248                |                           | 28.3<br>182.6                   |

\*Tensile and torsional values are calculated per API RP7G based on nominal dimensions and the published yield strength of the material and do not constitute a guarantee, actual or implied.



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### Pump-Open Force Chart





## *Dailey® Hydraulic Fishing Jar*

### *Operation*

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#### **Delivery to Location**

Weatherford delivers the *Dailey* hydraulic fishing jar to location with the mandrel in the *closed* position. The fully *closed* position leaves an approximate 1-in. gap between the bottom of the box end of the mandrel and the top of the upper housing. This design feature prevents debris in the wellbore fluid from being driven into the upper seals when the jar is completely closed.

**Note:** Check for any visible indications of leakage.

**Note:** All service breaks on the jar are pre-torqued at the Weatherford Service Center and do not require further tightening before running the tool in the hole.

#### **Picking Up and Laying Down**

Pick up and lay down the jar as with other jarring tools, except for the following special guidelines:

Install two equally spaced slings around the body of the jar, ensuring that the jar is balanced as it is being hoisted to or lowered from the rig floor.

**Note:** Do not use the gap at the top of the jar as a tie-on point when picking up or laying down the jar. If necessary, use a tailing rope to control motion.

**Note:** Do not break any connections when laying down the jar. Use thread protectors while handling the jar to prevent abuse to the pin or box connections, which can lead to improper makeup torque on the connection, galling of the threads, or washout of the connection.

#### **Positioning in the Fishing String**

For fishing applications, Weatherford recommends running the jar with a *Dailey* lubricated bumper sub and a *Dailey* HyPulse Jar Slinger®.

1. Run the jar in the lower portion of the bottomhole assembly (BHA), just above the fishing tools and the bumper sub.
2. Run three to five drill collars or joints of heavyweight drillpipe (HWDP) immediately above the jar, depending on operational requirements.
3. Position a slinger at the top of the drill collars or HWDP being used as a hammer.
4. Fishing assembly can be checked by use of the Weatherford Dailey jar placement program to provide optimal impact/impulse.



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### Installing in the Fishing String

Install the jar in the string as any other BHA component, with pin connection down and box connection up.

1. Tighten the box and pin connections that connect the jar to the other components of the BHA or fishing assembly.

**Note:** All service breaks are pre-torqued to Weatherford's recommended value.

**Note:** Always unlock the rotary and use two pairs of tongs when making up the jar in the string or breaking it out of the string. Never use the rotary to break the torque on the connection or to back into the jar when making it up in the string.

2. Install a drill collar safety clamp on the jar, above the slips, if the jar is left unsupported in the rotary table. This step prevents the jar from sliding through the slips.

**Note:** When making up the jar or breaking it out of the string, position it as low in the slips as possible, still leaving enough room to install the drill collar safety clamp and grasp the jar with the tongs. Conventional makeup and breakout tongs exert lateral forces that can bend or break the jar. Use of power tongs eliminates this risk; however, if using conventional tongs, position the jar as low in the slips as possible, leaving enough room to install the drill collar safety clamp and grasp the jar with the tongs.

### Standback Procedure

Weatherford does not recommend racking back the jar in the derrick while the string is out of the hole. In fishing applications, when the string is out of the hole and the jar will not remain suspended in the elevators, remove the jar from the string, and lay it down.



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### Downhole Operation

Downhole actuation of the jar requires only raising and lowering of the fishing string.

Set the jar as follows:

1. Slack off on the string until the end of free travel is observed on the weight indicator.
2. Raise the drill string until the indicated weight equals the calculated weight of the fishing string.

Deliver an upward blow as follows:

1. Continue to pull on the fishing string until the desired load is shown on the weight indicator.
2. Set the brake, and wait for the jar to trip.

**Note:** It is important to stay within the overpull limits set forth in the specifications for the jar size. Exceeding the maximum jarring load can damage the jar and render it inoperable. After the jar has tripped, the operator can pull the string to the tensile limits of the jar without damaging the jar.

3. Lower the jar to re-set, and repeat the jarring process as needed.

**Note:** The string can be lowered as fast as the operator wishes, with no adverse effects to the jar.

### Maintenance in the String

The *Dailey* hydraulic fishing jar requires very little on-site maintenance; however, for optimal performance, Weatherford recommends the following procedure each trip out of the hole:

1. Wash off the mandrel of the jar and the top of the upper housing where the mandrel goes through the upper seals.
2. Unscrew the jar from the BHA at the pin end, wash the inside diameter of the pin and the area around the compensating piston with water.